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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/690,157

10/16/2003

Mark A. Michalicek

AFD 624

6036

26902

7590

12/21/2004

DEPARTMENT OF THE AIR FORCE

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WRIGHT-PATTERSON AFB, OH 45433-7109

EXAMINER

LE, THAO P

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/690,157

Applicant(s)

MICHALICEK, MARK A.

Examiner

Thao P. Le

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 37-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-11 and 37-41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1 page.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAIL ACTION

This application claims benefit of 60/419336 filed on 10/17/2002.

Oath/Declaration

The oath/declaration filed on 02/05/04 is acceptable.

Election/Restriction

Examiner confirms that Applicants elected to prosecute Claims 1-11, 37-41 and have canceled Claims 12-36 without prejudice.

Information Disclosure Statement

Information Disclosure Statement (IDS) filed on **10/16/03** and made of record.
The references cited on the PTOL 1449 form have been considered.

Specification

This application is in condition for allowance except for the following formal matter:

The specification is objected to because of grammar mistakes:

The following phrases need the correct punctuation marks, for example, comma(s) need to be in between the underline words or change the language of the whole paragraphs:

Paragraph 0006: "Moreover the present invention eliminates a significant difficulty in correctly aligning"; "Since the present invention allows use of simple visual alignment procedures it eliminates the need"

Paragraph 0057: "In Fig. 1 the micromirror array 100 is attached to a hinge"; "the array is rotated and boned onto for example a CMOS receiving module array"

Paragraph 0058: "however since one of the functions"

Paragraph 0059: "Notably in the Fig. 2 status the array 100 can be metallized with reflective materials without masking or preprocessing"

Paragraph 0060: "In the Fig. 4 cross sectional view an individual cantilever micromirror 400"

Paragraph 0061: "In Fig. 4 the mirror 400 lower surface will actually come to rest on"

Paragraph 0062: "in other words element identification numbers remain consistent"

Paragraph 0064: "In this manner the present invention enables"

Paragraph 0065: "In the Fig. 7 drawing the clevis element of a hinge appears as 702"

Paragraph 0066: "According to this arrangement each of the clevis and wings"

Paragraph 0067: "According to this arrangement the etch plate remains captured in its connection"

Paragraph 0076: "The Fig. 5b gap 536 preferably is made of a"; "the Fig. 5b and Fig. 5c thin rectangular patterns"

The following noun should be change to plural:

Paragraph 0006: "affording some special form of protection for one module"

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Reasons for Indication of Allowable Subject Matter

Claims 1-11, 37-41 would be allowed. The following is an examiner's statement of reason for allowance: None of the references of record teaches or suggests the claimed limitations having a latching hinge method of making an electronically controlled MEMS device comprising, among other steps, the steps of off chip rotating of released hinge mounted etch plate and tether coupled MEMS active element module combination at hinge into a selected off of sacrificial substrate position, latching the etch plate and tethered MEMS active element module combination into the selected of MEMS substrate rotated position, and moving the MEMS active element module, the tether attached etch plate, and the hinge attached MEMS

Art Unit: 2818

active element sacrificial substrate combination into a position of aligned MEMD active element module engagement with electronic control circuit module. The method above provide a latching off chip arrangement to enable the prerelease of MEMS modules to be into a state that is accessible and convenient for ensuing processing such as bonding with an electronic circuit module to form a flip chip MEMS device.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2818

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



12/15/04

Thao P. Le

Art Unit 2818



MICHAEL TRAN
PRIMARY EXAMINER